

We claim:

1. An alignment device for aligning at least one apparatus with respect to a surface of a tissue, comprising a tissue interface member suitable for positioning on the surface of the tissue and mating with the apparatus to maintain alignment of the apparatus during an operation of the apparatus.
2. The alignment device of claim 1, further comprising an energy absorbing layer attached to the tissue interface member, wherein the energy absorbing layer is responsive to energy directed thereon to heat up and to conductively transfer heat to the surface of the tissue to ablate the tissue.
3. The alignment device of claim 2, wherein the energy absorbing layer further comprises a first and a second side, wherein the second side comprises adhesive material disposed thereon for adhering to the surface of the tissue.
4. The alignment device of claim 3, wherein the energy absorbing layer is removable from the tissue interface member after tissue ablation.
5. The alignment device of claim 2, wherein the tissue interface member mates with a first apparatus that emits energy to the energy absorbing layer to cause tissue ablation and with a second apparatus suitable for detecting a characteristic in a fluid collected from the tissue.
6. The alignment device of claim 1, wherein the tissue interface member comprises of at least one clip that mates with a surface on the apparatus to hold the apparatus with respect to the tissue interface member.
7. The alignment device of claim 6, wherein the clip is biased to hold the first apparatus and second apparatus under tension.

8. The alignment device of claim 1, wherein the tissue interface member has an exterior and an interior surface.

9. The alignment device of claim 8, wherein interior surfaces of the tissue interface member engage with surfaces of the apparatus to align the apparatus with the tissue interface member.

10. The alignment device of claim 8, wherein the exterior surfaces of the tissue interface member engage with surfaces of the apparatus to align the apparatus with the tissue interface member.

11. The alignment device of claim 8, wherein the tissue interface member comprises a male alignment member or a female alignment member that mates with a complementary female alignment member or a male alignment member, respectively, on the apparatus.

12. The alignment device of claim 1, wherein the tissue interface member comprises at least one magnetic surface portion to mate with at least one complementary magnetic surface portion on the apparatus.

13. The alignment device of claim 1, wherein the tissue interface member comprises a threaded member that mates with a complementary threaded member on the apparatus.

14. The alignment device of claim 1, wherein the tissue interface member further comprises an adhesive element allowing the device to be attached to the surface of tissue.

15. The alignment device of claim 1, wherein the tissue interface member comprises a strap that extends around a body portion of a user to mount and hold the tissue interface member to the surface of the tissue at a desired position.

16. In combination, the alignment device of claim 1, and a sensor to detect a characteristic of a biological fluid collected from the tissue, wherein the sensor comprises at least one alignment element that mates with the tissue interface member to achieve alignment with the tissue.

17. In combination, the alignment device of claim 1, and an energy emitter apparatus comprising at least one energy source for emitting energy, wherein the energy emitter apparatus comprises at least one alignment member that mates with the tissue interface member to achieve alignment with the tissue.

18. The combination of claim 17, wherein the energy emitter apparatus further comprises a controller and a sensor coupled to the controller, the sensor detecting when the energy absorbing apparatus is in position on the tissue interface member, wherein the controller is responsive to the sensor to enable activation of the energy emitter apparatus.

19. The combination of claim 18, wherein the sensor on the energy emitter apparatus comprises a pressure sensor responsive to sufficient pressure from engagement with the tissue interface member.

20. The combination of claim 19, wherein the energy emitter apparatus further comprises a switch that is closed by an element on the tissue interface member when the energy emitter apparatus is properly installed in the tissue interface member, wherein the controller of the energy emitter apparatus is responsive both to the switch being closed and the pressure sensor detecting sufficient pressure to enable activation of the energy emitter apparatus.

21. In combination, the alignment device of claim 1, and a tissue breaching device for mechanically breaching the tissue and forming at least one opening therein, wherein the tissue breaching device comprises at least one alignment member that mates with the tissue interface member to achieve alignment with the tissue.

22. In combination, the alignment device of claim 1, and a tissue breaching device comprising a heatable element for breaching the surface of the tissue by thermally ablating the tissue to form at least one opening therein, wherein the tissue breaching device comprises at least one alignment member that mates with the tissue interface member to achieve alignment with the tissue.

23. A system comprising:
a tissue interface member suitable for positioning on the surface of the tissue;
a tissue breaching device that mates with the tissue interface member to achieve a desired alignment with the surface of the tissue; and
a sensor device capable of mating to the tissue interface member when the tissue breaching device is not mated to the tissue interface member to achieve alignment with an ablated site of the tissue, wherein the sensor device detects a characteristic of a biological fluid collected from the ablated site of the tissue.

24. The system of claim 23, wherein the tissue breaching device is capable of mating to the tissue interface member to achieve alignment and is selected from a group comprising of a device that mechanically breaches the tissue, a heatable element device that thermally ablates the tissue, and an energy emitter device capable of emitting energy that is directly absorbed by the tissue.

25. The system of claim 24, further comprising an energy absorbing layer attached to the tissue interface member, wherein the energy absorbing layer is

responsive to energy directed thereon to heat up and to conductively transfer heat to the surface of the tissue to ablate the tissue, and wherein the tissue breaching device comprises the energy emitter device comprising at least one energy source for emitting energy to the energy absorbing layer.

26. The system of claim 25, wherein the energy absorbing layer is removable from the tissue interface member.

27. The system of claim 25, where in the energy absorbing layer comprises an adhesive on one surface thereof to attach at a desired location proximate to the surface of the tissue.

28. The system of claim 27, wherein the energy absorbing layer is simultaneously removed upon detachment of the tissue breaching apparatus.

29. The system of claim 23, wherein the tissue breaching apparatus forms at least one opening in the tissue through which the biological fluid is collected.

30. The system of claim 29, wherein the tissue interface member mates with the sensor device to align the sensor device with the at least one opening in the tissue.

31. The system of claim 30, wherein the sensor device draws biological fluid from the at least one opening under a suction force.

32. A method for detecting a characteristic of a biological tissue, comprising the steps of:

placing a tissue interface member at a desired position onto the surface of the tissue;

mating a tissue breaching apparatus to the tissue interface member to achieve alignment with the surface of the tissue;

activating the tissue breaching apparatus;
detaching the tissue breaching apparatus from the tissue interface member; and
mating a sensor device to the tissue interface member to achieve alignment with a breached tissue site.

33. The method of claim 32, wherein the step of activating a tissue breaching device involves activating the device selected from a group comprising a mechanical device, an electrically heatable element device, or an energy emitter device.

34. The method of claim 33, wherein the step of activating the energy emitter device further comprises the steps of positioning an energy absorbing layer proximate to the surface of the tissue in alignment with the tissue interface member;

mating an energy emitter device to the tissue interface member to achieve alignment with the energy absorbing layer;

activating the energy emitter device to emit energy to the energy absorbing layer, wherein the energy absorbing layer is responsive to energy directed thereon to heat and conductively transfer heat to the surface of the tissue thereby ablating the tissue;

detaching the energy emitter device from the tissue interface member; and

removing the energy absorbing layer.

35. The method of claim 33, wherein the step of activating the energy emitter device causes the formation of at least one opening in the tissue.

36. The method of claim 35, and further comprising the step of detecting a characteristic of a biological fluid collected from the at least one opening in the tissue with the sensor device.

37. The method of claim 36, wherein the step of positioning the energy absorbing layer comprises adhering the energy absorbing layer to the tissue with an adhesive.

38. The method of claim 34, and wherein the step of placing the tissue interface member on the tissue is performed with the energy absorbing layer attached in a desired alignment to the tissue interface member.

39. The method of claim 34, and further comprising the step of removing the energy absorbing layer from the tissue interface member after the tissue is ablated.

40. The method of claim 34, and further comprising the step of simultaneously removing the energy absorbing layer from the tissue interface member together with detachment of the energy emitter device from the tissue interface member.

41. A sensor device for sensing a characteristic of a biological fluid collected from a tissue, comprising:

a housing;
at least one opening in the housing to collect biological fluid from the tissue;

at least one alignment member suitable for mating with a complementary alignment member of a tissue interface member positioned on a surface of the tissue for aligning the at least one opening in the housing with a predetermined surface portion of the tissue.

42. An energy emitter apparatus comprising:
an energy source for emitting energy suitable for absorption by an energy absorbing layer positioned in substantial contact with a surface of a tissue; and

at least one alignment member suitable for mating with at least one complementary alignment member of a tissue interface member positioned on a surface of the tissue for aligning the energy emitted by the energy source with the energy absorbing layer.